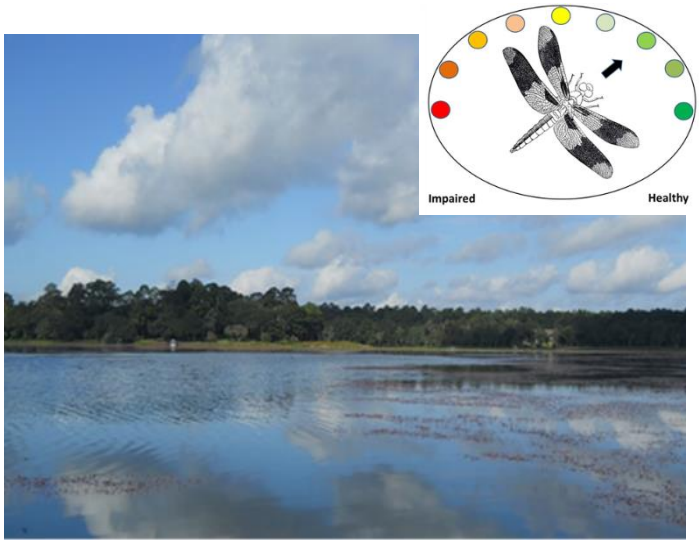
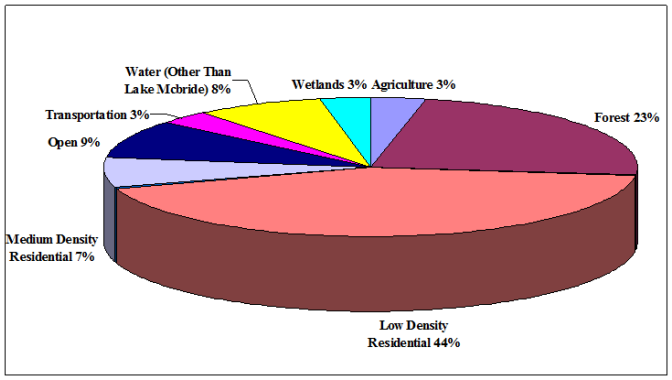
Waterbody: Lake McBride



Basin: Lake Lafayette

Lake McBride is a 183 acre lake located in northern Leon County.

As shown in the following pie chart, approximately 57% of land use in the 1,210 acre Lake McBride watershed is agricultural, residential, or transportation. Increases in stormwater runoff, and waterbody nutrient loads can often be attributed to these types of land uses.



Background

Healthy, well-balanced lake communities may be maintained with some level of human activity, but excessive human disturbance may result in waterbody degradation. Human stressors may include increased inputs of nutrients, sediments, and/or other contaminants from watershed runoff, adverse hydrologic alterations, undesirable removal of habitat or riparian buffer vegetation, and introduction of exotic plants and animals. Water quality standards are designed to protect designated uses of the waters of the state (*e.g.,* recreation, aquatic life, fish consumption), and exceedances of these standards are associated with interference of the designated use.

Methods

Surface water sampling, sediment sampling and a Lake Vegetation Index (LVI) were conducted and met the collection and analysis requirements of the Florida Department of Environmental Protection (FDEP).

Results

Nutrients

The nutrient thresholds and results are found in Table 1. According to FDEP requirements, Numeric Nutrient Criteria (expressed as an annual geometric mean) cannot be exceeded more than once in a three year period.

Table1. FDEP's chlorophyll *a*, total nitrogen and phosphorus criteria for lakes applied to Lake McBride. Results in bold signify exceedances of the State criteria.

Clear Lake, Low Alkalinity	Chlorophyll-*a* 6.0 µg/L	Total Nitrogen Threshold 0.51-0.93 mg/L	Total Phosphorus Threshold 0.01-0.03 mg/L
2004	3.6	0.19	0.02
2005	2.9	0.27	0.02
2006	1.6	0.36	0.02
2007	1.7	0.50	0.02
2008	3.9	0.44	0.01
2009	3.1	0.21	0.01
2010	2.6	0.33	0.01

Clear Lake, Low Alkalinity	Chlorophyll-*a* 6.0 µg/L	Total Nitrogen Threshold 0.51-0.93 mg/L	Total Phosphorus Threshold 0.01-0.03 mg/L
2011	**6.6**	0.47	0.02
2012	5.6	0.46	0.01
2013	4.2	0.28	0.01
2014	1.7	0.36	0.01

Chlorophyll *a* values did not meet the state criteria for 2011, possibly as a result of nutrient concentration associated with low water levels.

Dissolved Oxygen

Station MB6 percent dissolved oxygen (DO) saturation values were below Class III criteria during certain events. This was not unexpected, since this station, located in the southwest quadrant of the lake, is shallow and covered with vegetation, which prevents rapid water exchange with the larger area of the lake. Plant respiration (samples were often taken in the morning hours) also contributed to the low DO saturation values. Staff believes that this is a natural condition for this location.

Cadmium

The cadmium result at station MB6 exceeded Class III criteria during the 1st quarter of 2014. The source of this exceedance is unknown.

Click here for more information on metal levels in Leon County waterbodies.

Other Parameters

Other water quality parameters appear to be normal for the area and no impairments were noted.

Floral Assessment

The Lake Vegetation Index score for Lake McBride was 67, placing the lake's vegetative community in the healthy category.

Sixty seven plant species were found during the survey. The native species fanwort (*Cabomba caroliniana*) and fragrant waterlily (*Nymphaea odorata*) were the most dominant plants in the lake, followed by spatterdock (*Nuphar* sp.), watershield (*Brasenia schreberi*) and bladderwort (*Utricularia* spp.). Other native shoreline vegetation included red maple (*Acer rubrum*), buttonbush (*Cephalanthus occidentalis*) and pickerelweed (*Pontederia cordata*).

Unfortunately, wild taro (*Colocasia esculenta*), water spangles (*Salvinia minima*), and Chinese tallow (*Sapium sebiferum*), all listed as Category I Invasive Exotics by the Florida Exotic Pest Plant Council, are invasive exotics that are a concern in Lake McBride. A plant previously found in Lake McBride, hydrilla (*Hydrilla verticillata*), another Category I Invasive Exotic, was not found during this survey. Alligator weed (*Alternanthera philoxeroides*), a Category II Invasive Exotic, was found for the first time in Lake McBride in 2013 and is still present. Burhead sedge (*Scirpus cubensis*) was also found in Lake McBride and is especially prevalent on the tussocks found in and along the edges of the lake. Experts are in disagreement about whether this species is a native or non-native to Florida.

Click here for more information on the Lake McBride LVI.

Click here for more information on common exotic and invasive plants in Leon County wetlands and waterbodies.

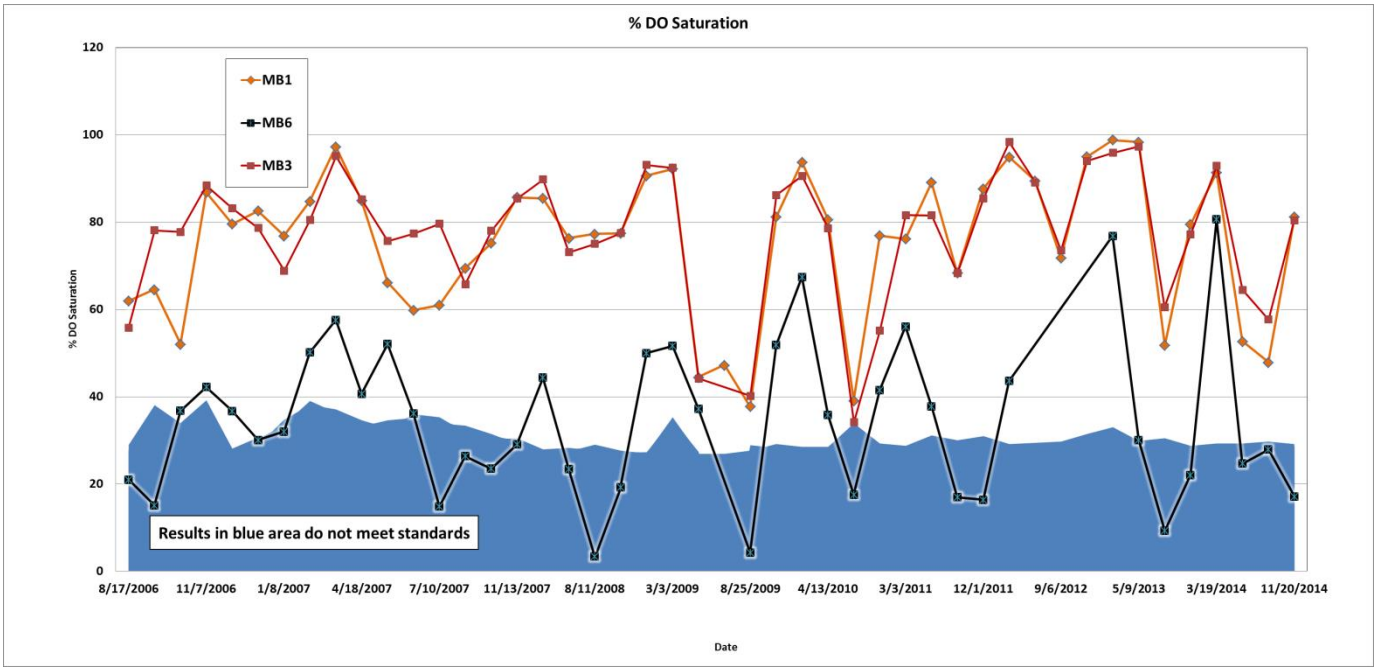


Figure 1. Dissolved Oxygen Percent Saturation results for Lake McBride.

Conclusions

Based on ongoing sampling, Lake McBride met the nutrient thresholds for the East Panhandle Region; and the floral community is considered "healthy" by the LVI. Staff considers the low DO results at Station MB6 a natural condition. The cause of the cadmium exceedance is unknown. Other water quality parameters appear to be normal for the area and no impairments were noted.

Thank you for your interest in maintaining the quality of Leon County's water resources. Please feel free to contact us if you have any questions.

Contact and resources for more information

www.LeonCountyFL.gov/WaterResources

Click here to access the results for all water quality stations sampled in 2014.

Click here for map of watershed – Sample sites MB1, MB3 and MB6.

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